3R - 106

BRUINGTON GC#1

REPORTS

DATE:

1998-1996

CROSS TIMBERS OIL COMPANY

GROUNDWATER REMEDIATION REPORT

1996-1998

BRUINGTON GC #1
(E) SECTION 14, T29N, R11W, NMPM
SAN JUAN COUNTY, NEW MEXICO

PREPARED FOR:
MR. WILLIAM C. OLSON
NEW MEXICO OIL CONSERVATION DIVISION

FEBRUARY 1999

PREPARD BY:
BLAGG ENGINEERING, INC.

Consulting Petroleum / Reclamation Services
P.O. Box 87
Bloomfield, New Mexico 87413

BRUINGTON GC # 1 - Blow Pit
Sw/4 Nw/4 Sec. 14, T29N, R11W

Site Assessment Date:	**Not Applicable**
Pit Closure Date:	**October 20, 1993 - November 10, 1993 (Documentation Included)**
Monitor Well Installation Date:	**April 25, 1996**
Monitor Well Sampling Date:	**June 7, 1996**

Groundwater Monitor Well Sampling Procedures:

Groundwater samples were collected from site monitor wells following USEPA: SW-846 protocol. The samples were collected using new disposable bailers and placed in new laboratory supplied 40 ml glass vials with teflon septa caps. Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) per USEPA Method 8020. When applicable, additional groundwater was collected and place in laboratory supplied 250 or 500 ml plastic containers and analyzed for general water quality per USEPA Method 600/4-79-020. The samples were preserved cool (BTEX samples also preserved with mercuric chloride) and hand delivered to a qualified laboratory for testing. Waste generated during monitor well sampling and development was disposed of utilizing the separator tank pit located on the well site.

Water Quality Information:

The BTEX and general chemistry results for 1996 are summarized in the following tables. Following Amoco's NMOCD approved groundwater plan, sampling of MW #1 & #3 was terminated after the initial BTEX results revealed non detectable or below 25% of the New Mexico Water Quality Control Commission's (NMWQCC) allowable concentration for groundwater. MW # 2 showed benzene and total xylenes levels exceeding those allowable concentration (347 & 1,580 parts per billion respectively). The general chemistry results indicate that the total dissolved solids (TDS) for the pit area and immediate down gradient direction exceed the apparent background levels (MW #1); however, TDS background levels exceed the NMWQCC allowable concentration for domestic consumption.

Summary and/or Recommendations:

Based on the enclosed documentation, groundwater contamination within the blow pit area appears to have reached geochemical equilibrium. In addition, the groundwater level at the pit area appears to have a dramatic seasonal fluctuation probably influenced by the nearby irrigation ditch immediately west of the area (refer to Bore / Test Hole Reports). Blagg Engineering, Inc. intends on modifying the screen interval for the groundwater level changes prior to the next sampling event scheduled for June, 1997. MW #2 will be sampled annually until results indicate otherwise. All aspects of the Amoco revised groundwater plan dated October 22, 1996 (approved by NMOCD with letter dated February 7, 1997) has been adhered to.

BRUINGTON GC # 1 - Blow Pit
Sw/4 Nw/4 Sec. 14, T29N, R11W

Monitor Well Installation Date: **June 17, 1997 (MW # 1A)**

Monitor Well Sampling Date: **June 27, 1997**

Water Quality Information:

The BTEX results for 1997 are summarized in the following table. MW # 2 which was placed on an annual sampling schedule showed a slight increase in the benzene level from the previous year sampling event (429 parts per billion (ppb) compared to 347 ppb), but a significant decrease in total xylenes (1580 ppb / 402.4 ppb).

Summary and/or Recommendations:

On June 16, 1997 Blagg Engineering, Inc. (BEI) investigated depth to water within the three (3) monitor wells on site. The results of the finding are shown in the table below:

MW #	DEPTH TO WATER FROM GROUND SURFACE (ft.)	SCREEN INTERVAL FROM GROUND SURFACE (ft.)	WATER LEVEL ABOVE TOP OF SCREEN (ft.)
1	5.10	13.75 - 18.75	8.65
2	8.13	14.50 - 19.50	6.37
3	11.18	13.80 - 18.80	2.62

As the information discloses, the water levels within all of the monitor wells continued to be well above their respective screen intervals. On June 17, 1997, BEI drilled MW # 1A (see Monitor Well completion schematic) immediately adjacent to MW #1 and changed the screen interval in MW #'s 2 and 3 within the measured water level (pulled casing up 7.47 and 3.00 ft. respectively). Depth to water measurements was again collected during the June 27th sampling event to address the data needed for accurate groundwater flow direction.

Groundwater contamination within the blow pit area appears to have reached steady state conditions. In addition, the groundwater flow direction has diverted to the northwest direction paralleling the nearby irrigation ditch immediately west of the area (refer to Figure 4). It is still suggested that the ditch remains the influencing factor in groundwater fluctuation and flow for the immediate vicinity of the blow pit.

In review of the pit closure field report conducted in November, 1993, it is apparent that hydrocarbon contamination remained on the surface and possibly within the exposed sandstone benches during the excavation of the blow pit. It is therefore postulated that the ocillation of groundwater may be contributing to the increase levels of BTEX to the lower lying areas (MW #2's location). BEI recommends to continue monitoring MW #2 on an annual basis to further evaluate and determine if this postulation is accurate.

BRUINGTON GC # 1 - Blow Pit
Sw/4 Nw/4 Sec. 14, T29N, R11W

Monitor Well Installation Dates: **June 5 & 19, 1998 (MW # 2R & 1R)**

Monitor Well Sampling Date: **June 12, 1998**

Water Quality Information:

The BTEX results for 1998 are summarized in the following table. MW #2 which was placed on an annual sampling schedule showed a significant increase in all BTEX constituents from the previous year sampling event.

Summary and/or Recommendations:

The initial site visit for sampling of MW #2 was conducted on May 30, 1998. Two (2) observation was made as of the conditions of the monitor wells and groundwater conditions: 1) the exposed casing for MW #1 was found broken off at the ground surface, and 2) no groundwater was encountered in either MW # 1A or #2. Blagg Engineering, Inc. (BEI) then drilled MW #2R on June 5, 1998 and MW #1R on June 19, 1998 (see Monitor Well completion schematics) immediately adjacent to the original named monitor wells. Depth to water measurements was again collected during the June 12th sampling event and on June 20th (MW #1R) to address the data needed for accurate groundwater flow direction.

The groundwater flow direction continues to be in the northwest direction during the June annual sampling events (refer to Figures 4 & 5). It has become apparent that the nearby ditch located to the west of the blow pit is the influencing factor in groundwater fluctuation and flow.

In review of the pit closure field report and the historical lab results it appears that groundwater fluctuation may indeed be contributing to the increase levels of BTEX to the lower lying areas (MW #2's location). BEI again recommends to continue monitoring MW #2 on an annual basis to further evaluate and determine if this supposition will sustain itself. In addition, it is also recommended to sample MW #1R and #3 to verify hydrocarbon contamination steady state conditions in and around MW #2.

AMOCO GROUNDWATER MONITOR WELL LABORATORY RESULTS

SUBMITTED BY BLAGG ENGINEERING, INC.

BRUINGTON GC # 1 - BLOW PIT
UNIT E, SEC. 14, T29N, R11W

REVISED DATE: June 12, 1998

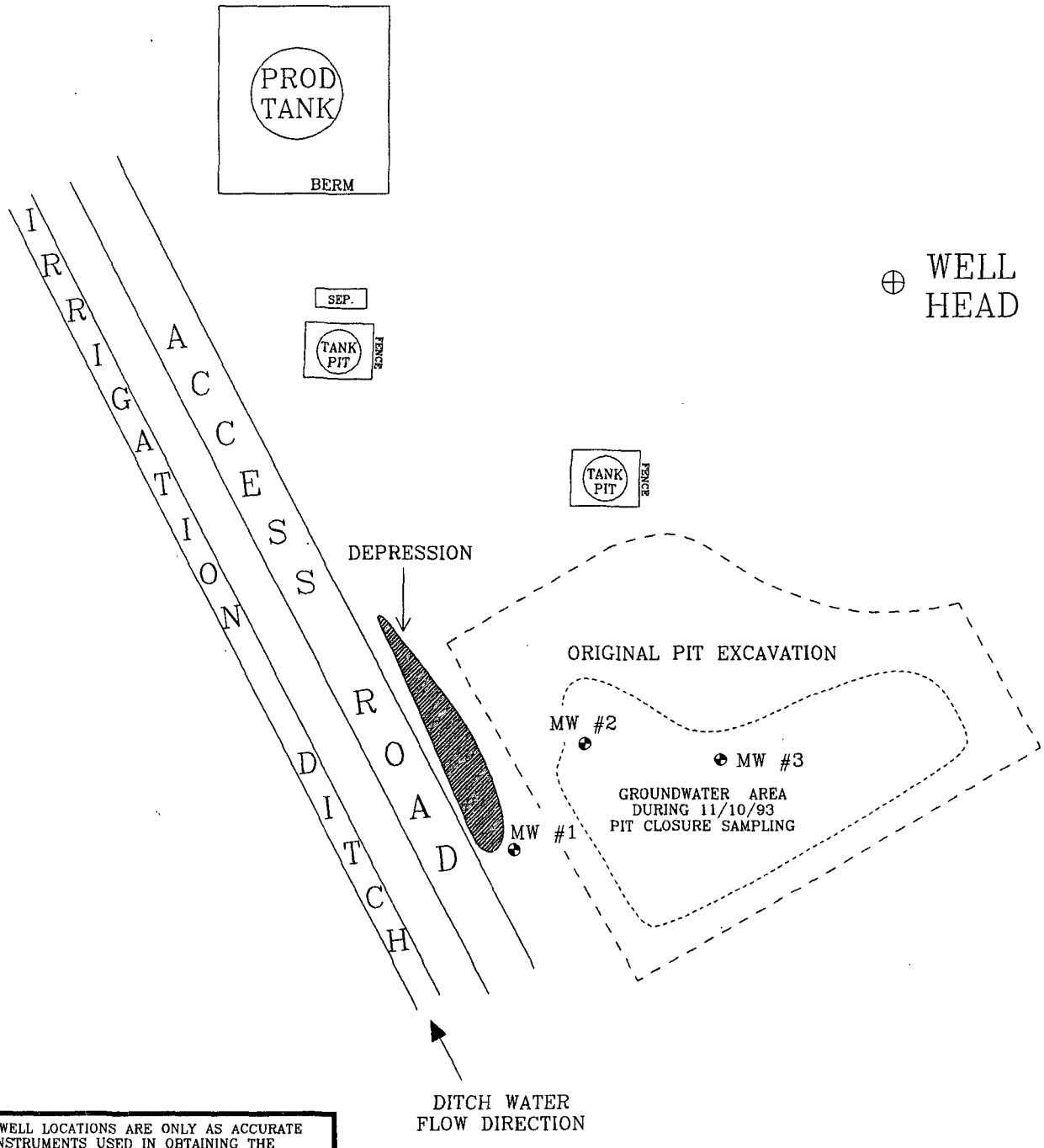
FILENAME: (BR-2Q-98.WK3) NJV

SAMPLE DATE	MONITOR WELL No:	D.T.W. (ft)	T.D. (ft)	TDS mg/L	COND. umhos	pH	PRODUCT (in)	BTEX EPA METHOD 8020 (PPB) Benzene	Toluene	Ethyl Benzene	Total Xylene
07-Jun-96	MW #1	7.00	20.36	5570	3200	7.1	-	ND	ND	ND	ND
07-Jun-96	MW #2	10.12	21.74	7980	5500	6.7	-	347	28.5	156	1580
27-Jun-97		12.65	14.47		4800	6.9	-	429	67.9	46.1	402.4
12-Jun-98	MW #2R	11.00	20.95		3500	7.6	-	13440	13330	1030	6040
07-Jun-96	MW #3	13.05	21.17	10300	6500	6.7	-	ND	1.8	ND	ND

GENERAL WATER QUALITY
AMOCO PRODUCTION COMPANY
BRUINGTON GC # 1
SAMPLE DATE : JUNE 7, 1996

PARAMETERS		MW # 1	MW # 2	MW # 3	Units
GENERAL	LAB pH	7.6	7.2	7.2	s. u.
	LAB CONDUCTIVITY (25 DEG. CELCIUS)	4,110	8,270	10,400	umhos cm
	TOTAL DISSOLVED SOLIDS (180 DEG. CELCIUS)	5,570	7,980	10,300	mg / L
	TOTAL DISSOLVED SOLIDS (CALCULATED)	5,240	7,710	10,000	mg / L
ANIONS	TOTAL ALKALINITY AS CaCO3	201	430	501	mg / L
	BICARBONATE ALKALINITY (AS CaCO3)	201	430	501	mg / L
	CARBONATE ALKALINITY (AS CaCO3)	NA	NA	NA	mg / L
	HYDROXIDE ALKALINITY (AS CaCO3)	NA	NA	NA	mg / L
	CHLORIDE	82.5	147	295	mg / L
	SULFATE	3,430	4,730	5,990	mg / L
	NITRATE + NITRITE - N	NA	NA	NA	
	NITRATE - N	NA	NA	NA	
	NITRITE - N	NA	NA	NA	
CATIONS	TOTAL HARDNESS AS CaCO3	1,540	939	1,210	mg / L
	CALCIUM	575	366	672	mg / L
	MAGNESIUM	24.6	6.16	<0.1	mg / L
	POTASSIUM	<5.0	<5.0	6.00	mg / L
	SODIUM	1,000	2,200	2,900	mg / L
DATA VALIDATION					ACCEPTANCE LEVEL
	CATION/ANION DIFFERENCE	2.34	1.47	2.21	+/- 5 %
	TDS (180):TDS (CALCULATED)	1.1	1.0	1.0	1.0 - 1.2

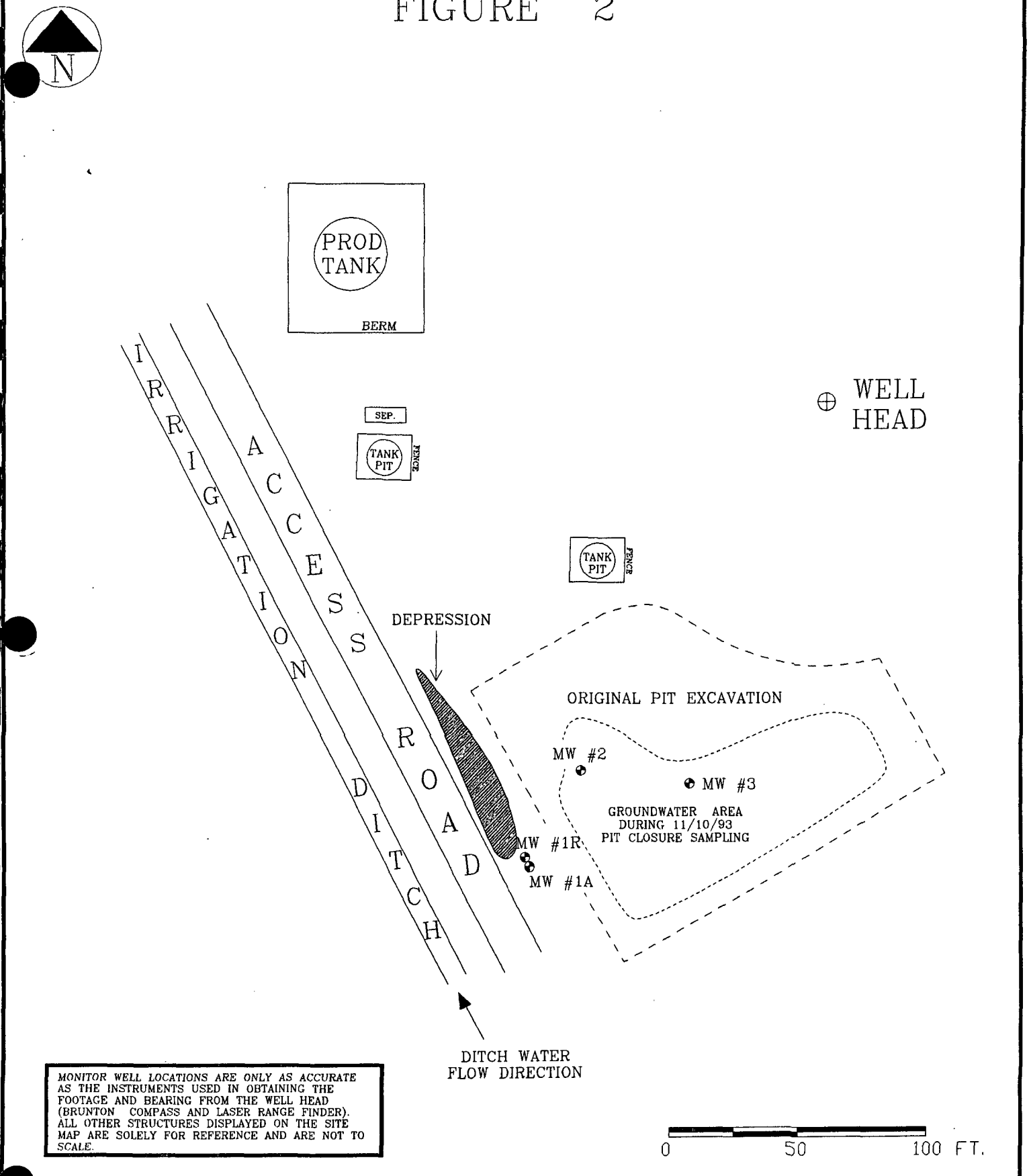
FIGURE 1



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

AMOCO PRODUCTION COMPANY BRUINGTON GC 1 SW/4 NW/4 SEC. 14, T29N, R11W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	PROJECT: MW INSTALL. DRAWN BY: NJV FILENAME: 06-07-SM.SKD REVISED: 06/30/97 NJV	SITE MAP 06/96

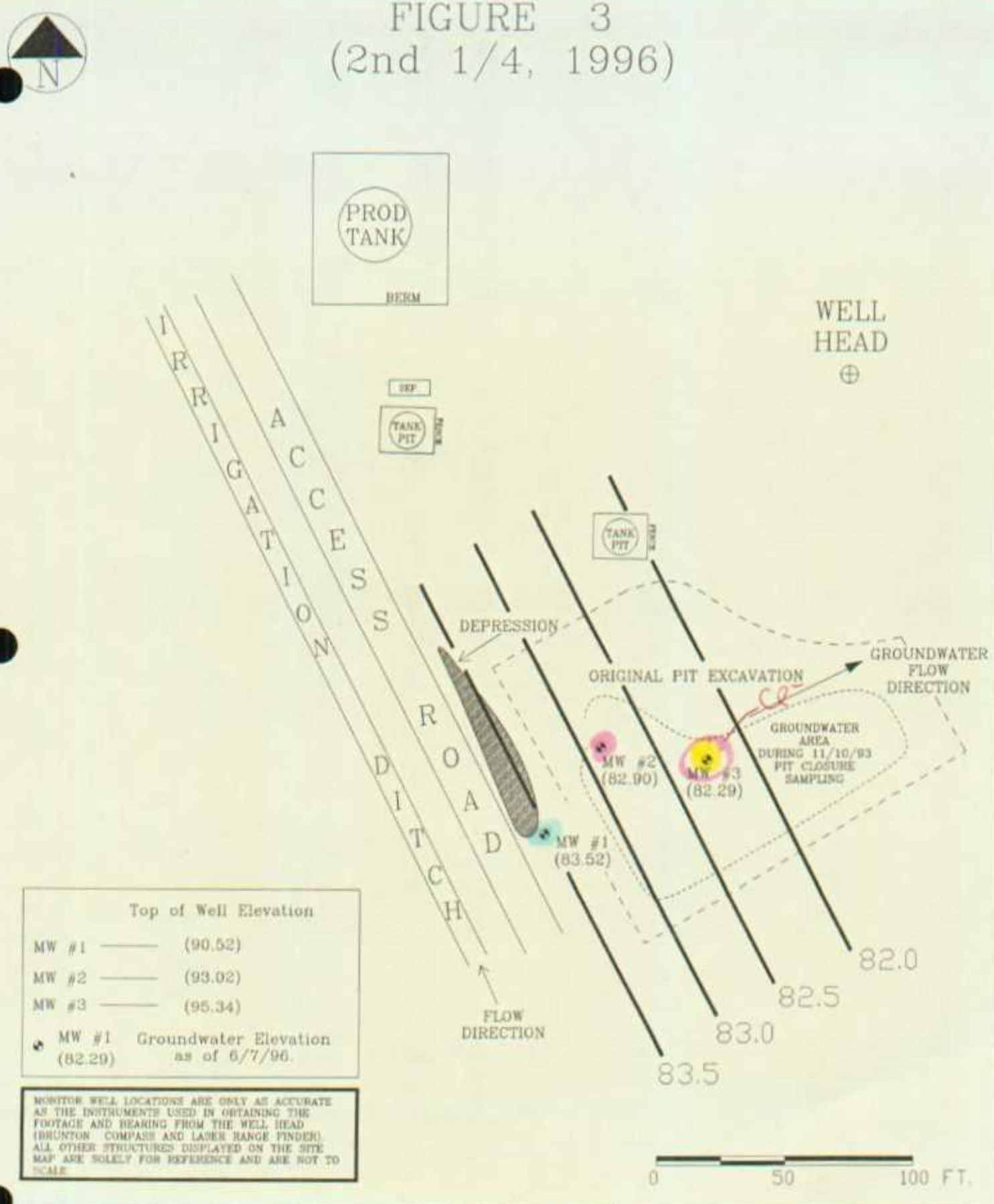
FIGURE 2



MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

AMOCO PRODUCTION COMPANY BRUINGTON GC 1 SW/4 NW/4 .SEC. 14, T29N, R11W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE: (505) 632-1199	PROJECT: 1/4ly Monitor. DRAWN BY: NJV FILENAME: 06-27-SM.SKD REVISED: 06/22/98 NJV	SITE MAP 06/98

FIGURE 3
(2nd 1/4, 1996)



Top of Well Elevation	
MW #1	(90.52)
MW #2	(93.02)
MW #3	(95.34)

MW #1 (82.29) Groundwater Elevation as of 6/7/96.

MONITOR WELL LOCATIONS ARE ONLY AS ACCURATE AS THE INSTRUMENTS USED IN OBTAINING THE FOOTAGE AND BEARING FROM THE WELL HEAD (BRUNTON COMPASS AND LASER RANGE FINDER). ALL OTHER STRUCTURES DISPLAYED ON THE SITE MAP ARE SOLELY FOR REFERENCE AND ARE NOT TO SCALE.

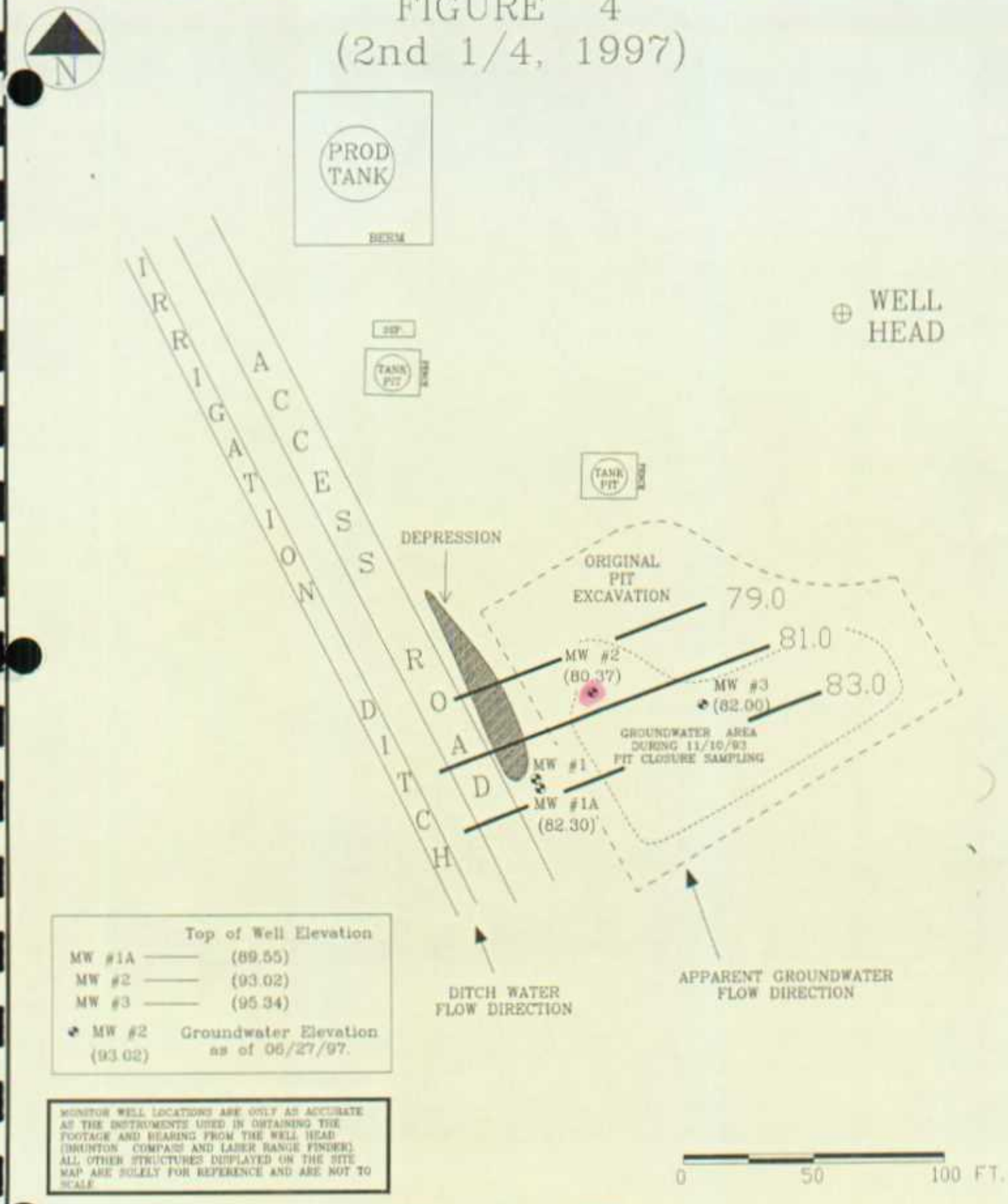
AMOCO PRODUCTION COMPANY
BRUINGTON GC 1
SW/4 NW/4 SEC. 14, T29N, R11W
SAN JUAN COUNTY, NEW MEXICO

BLAGG ENGINEERING, INC.
CONSULTING PETROLEUM / RECLAMATION SERVICES
P.O. BOX 87
BLOOMFIELD, NEW MEXICO 87413
PHONE (505) 632-1199

PROJECT: 1/4ly Monitor.
DRAWN BY: NJV
FILENAME: BRUING
REVISED: 1/17/97 NJV

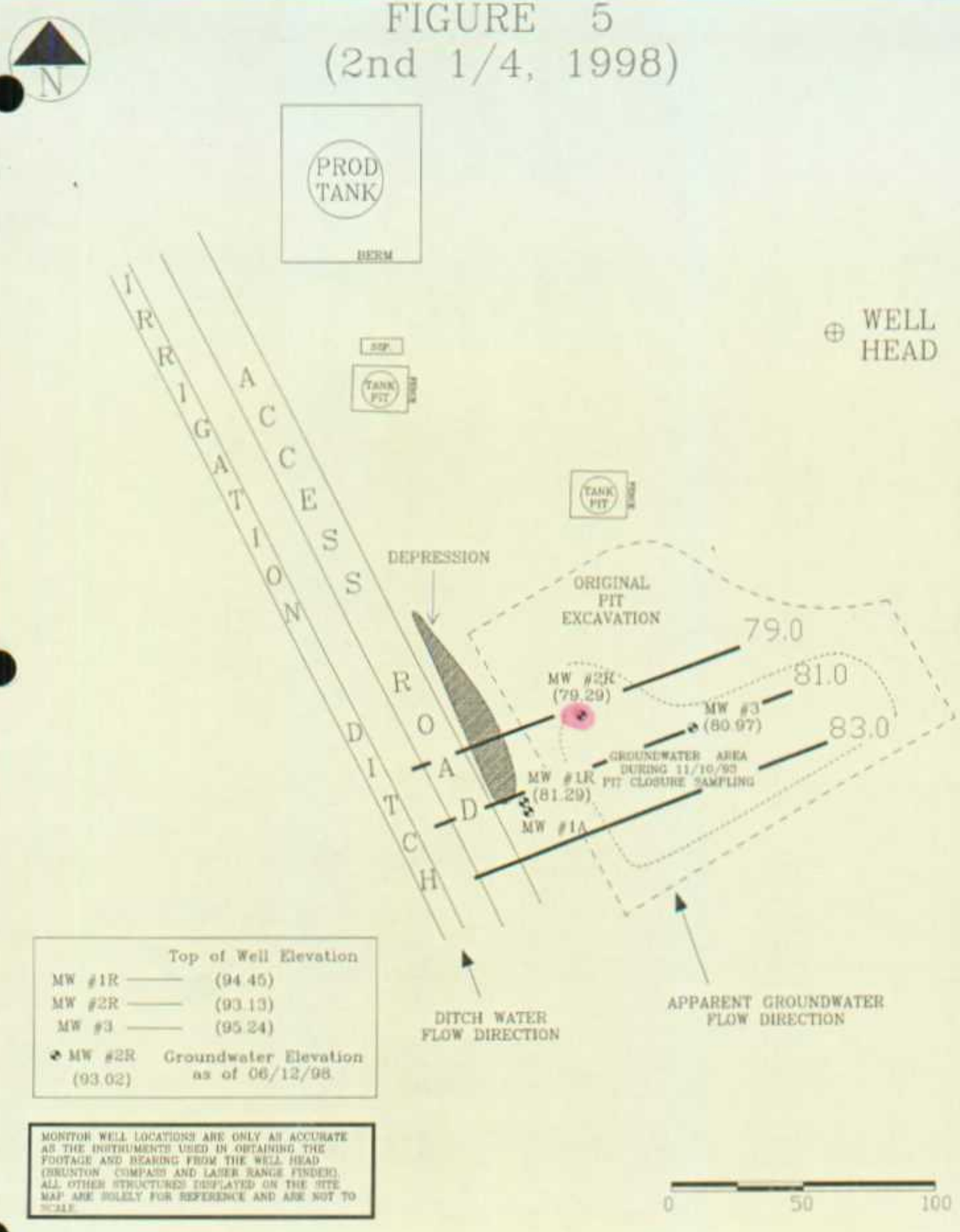
GROUNDWATER GRADIENT MAP 6/96

FIGURE 4
(2nd 1/4, 1997)



AMOCO PRODUCTION COMPANY BRUINGTON GC 1 SW/4 NW/4 SEC. 14, T29N, R11W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE (505) 632-1199	PROJECT: 1/4ly Monitor DRAWN BY: NJV FILENAME: 06-27-GW.SKD REVISED: 06/30/97 NJV	GROUNDWATER GRADIENT MAP 06/97

FIGURE 5
(2nd 1/4, 1998)



AMOCO PRODUCTION COMPANY BRUINGTON GC 1 SW/4 NW/4 SEC. 14, T29N, R11W SAN JUAN COUNTY, NEW MEXICO	BLAGG ENGINEERING, INC. CONSULTING PETROLEUM / RECLAMATION SERVICES P.O. BOX 87 BLOOMFIELD, NEW MEXICO 87413 PHONE (505) 632-1199	PROJECT: 1/4ly Monitor DRAWN BY: NJV FILENAME: 06-12-GW.SKD REVISED 06/22/98 NJV	GROUNDWATER GRADIENT MAP 06/98

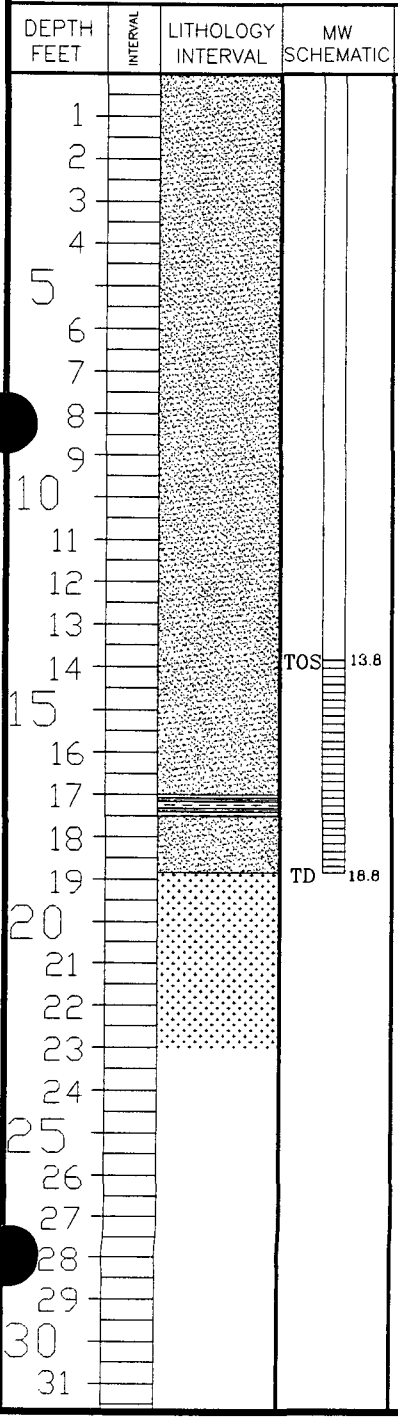
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	BRUINGTON GC # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S20W, 156 FEET FROM WELL HEAD.

BORING #.....	BH - 1
MW #.....	1
PAGE #.....	1
DATE STARTED	4/25/96
DATE FINISHED	4/25/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

TOP OF CASING APPROX. 2.00 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0 - 17 FT. INTERVAL).

▼ GW DEPTH ON 6/7/96 = 11.05 FT. (APPROX.) FROM GROUND SURFACE.

DARK YELLOWISH BROWN CLAY, PLASTIC, SATURATED, STIFF TO VERY HARD, NO APPARENT HYDROCARBON ODOR OBSERVED (17 - 17.5 FT. INTERVAL).

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SATURATED, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (17.5 - 18.8 FT. INTERVAL).

DARK YELLOWISH BROWN BEDROCK OR CLAY, COHESIVE, SLIGHTLY MOIST, VERY HARD, NO APPARENT HYDROCARBON ODOR OBSERVED (18.8 FT. DEPTH).

NOTES:
- SAND TO SILTY SAND.
- CLAY.
- BEDROCK OR VERY HARD CLAY.
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING:	DATE:	DWN BY:
BRUING-1	2/07/97	NJV

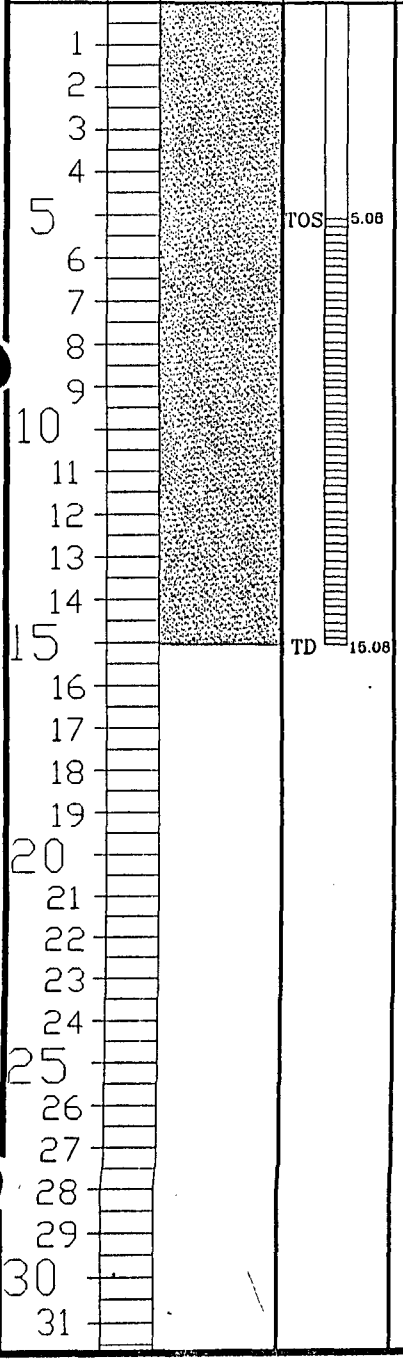
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	BRUINGTON GC # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S34W, 210 FEET FROM WELL HEAD.

BORING #.....	BH - 1R
MW #.....	1R
PAGE #.....	1R
DATE STARTED	6/19/98
DATE FINISHED	6/19/98
OPERATOR.....	REP
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

TOP OF CASING APPROX. 4.92 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (SCREENED INTERVAL), FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (0.0 - 15.08 FT. INTERVAL).

▼ GW DEPTH ON 6/20/98 = 8.24 FT. (APPROX.) FROM GROUND SURFACE.

NOTES:
- SAND TO SILTY SAND.
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING:	DATE:	DWN BY:
BRU-1R	6/22/98	NJV

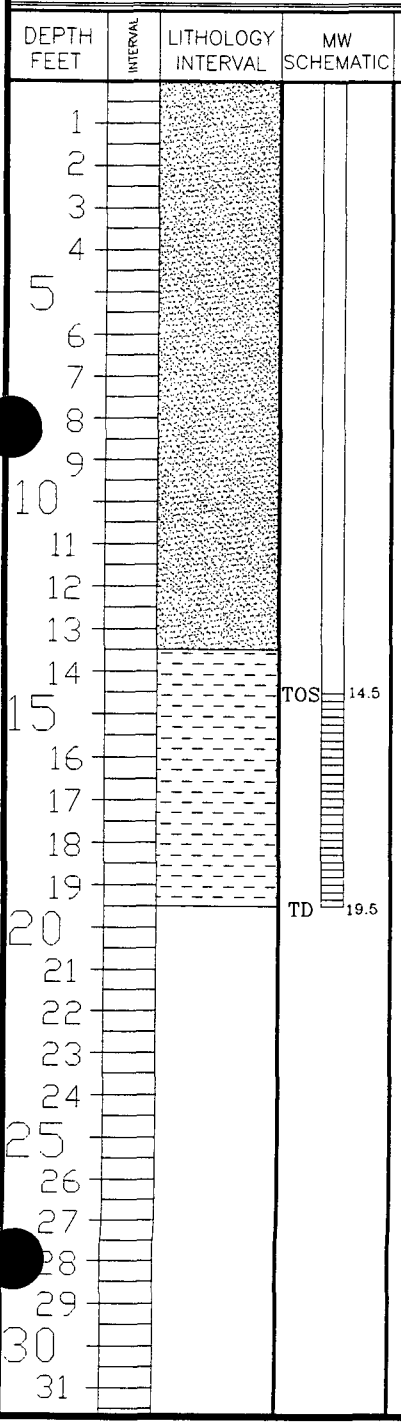
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	BRUINGTON GC # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S34W, 171 FEET FROM WELL HEAD.

BORING #.....	BH - 2
MW #.....	2
PAGE #.....	2
DATE STARTED	4/25/96
DATE FINISHED	4/25/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.90 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0 - 13.5 FT. INTERVAL).

▼ GW DEPTH ON 6/7/96 = 8.22 FT. (APPROX.) FROM GROUND SURFACE.

OLIVE TO DARK GRAY SAND TO SILTY SAND, NON COHESIVE, SATURATED, FIRM, STRONG HYDROCARBON ODOR OBSERVED (13.5 - 19.5 FT. INTERVAL).

NOTES:
- SAND TO SILTY SAND.
- SAND TO SILTY SAND (DISCOLORED).
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING: BRUING-2	DATE: 2/07/97	DWN BY: NJV

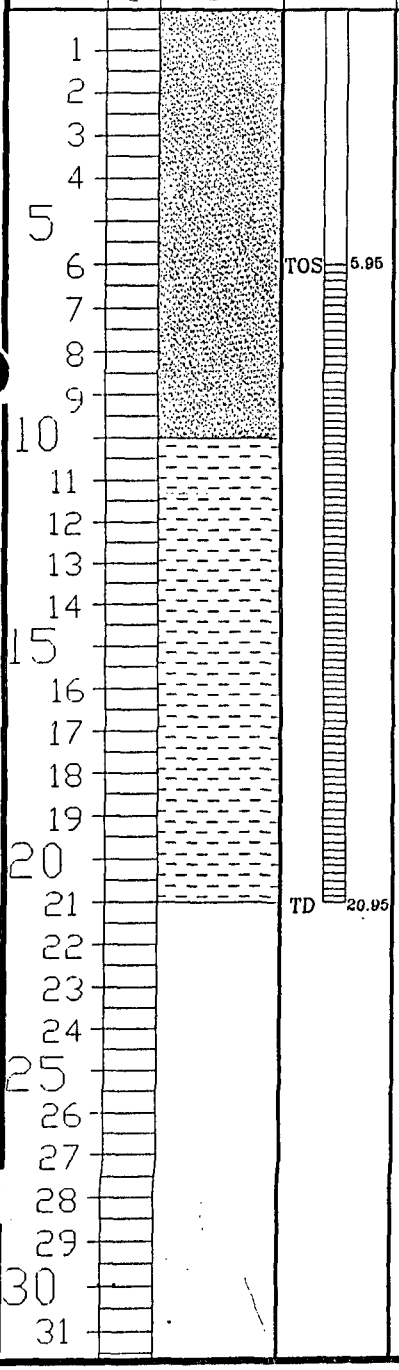
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	BRUINGTON GC # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S34W, 171 FEET FROM WELL HEAD.

BORING #.....	BH - 2R
MW #.....	2R
PAGE #.....	2A
DATE STARTED	6/5/98
DATE FINISHED	6/5/98
OPERATOR.....	REP
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

TOP OF CASING APPROX. 2.05 FT. ABOVE GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND, NON COHESIVE, SLIGHTLY MOIST, FIRM, NO APPARENT HYDROCARBON ODOR DETECTED (0 - 10.0 FT. INTERVAL).

▽ GW DEPTH ON 6/12/98 = 8.95 FT. (APPROX.) FROM GROUND SURFACE.

OLIVE TO DARK GRAY SAND TO SILTY SAND, NON COHESIVE, SATURATED, FIRM, STRONG HYDROCARBON ODOR DETECTED (10.0 - 20.95 FT. INTERVAL).

NOTES:
- SAND TO SILTY SAND.
- SAND TO SILTY SAND (DISCOLORED).
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING: BRU-2R	DATE: 6/22/98	DWN BY: NJV

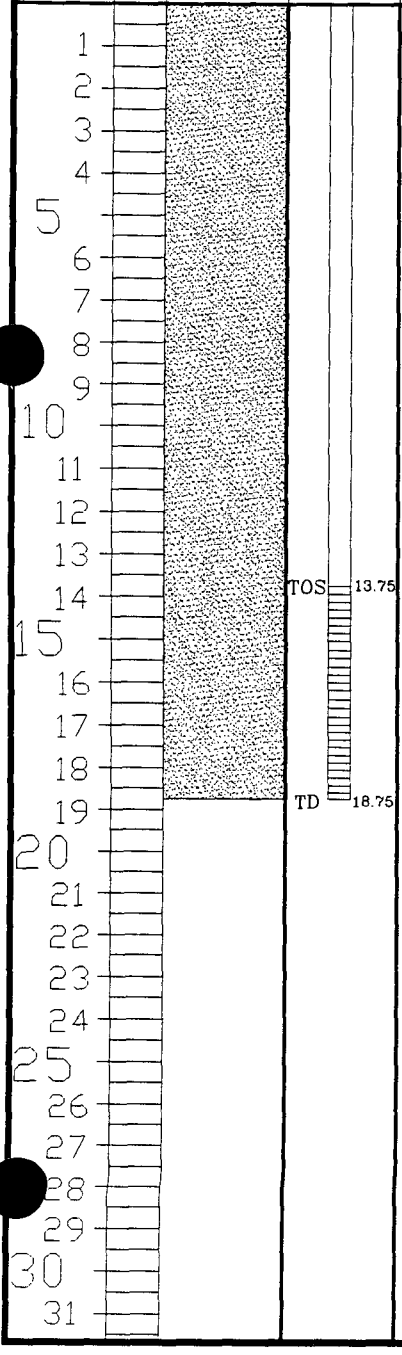
BLAGG ENGINEERING, Inc.

P.O. BOX 87
BLOOMFIELD, NM 87413
(505) 632-1199

BORE / TEST HOLE REPORT

LOCATION NAME:	BRUINGTON GC # 1
CLIENT:	AMOCO PRODUCTION COMPANY
CONTRACTOR:	BLAGG ENGINEERING, INC.
EQUIPMENT USED:	MOBILE DRILL RIG (EARTHPROBE)
BORING LOCATION:	S34W, 210 FEET FROM WELL HEAD.

BORING #.....	BH - 3
MW #.....	3
PAGE #.....	3
DATE STARTED	4/25/96
DATE FINISHED	4/25/96
OPERATOR.....	JCB
PREPARED BY	NJV



FIELD CLASSIFICATION AND REMARKS

GROUND SURFACE

TOP OF CASING APPROX. 1.25 FT. ABOVE GROUND SURFACE.

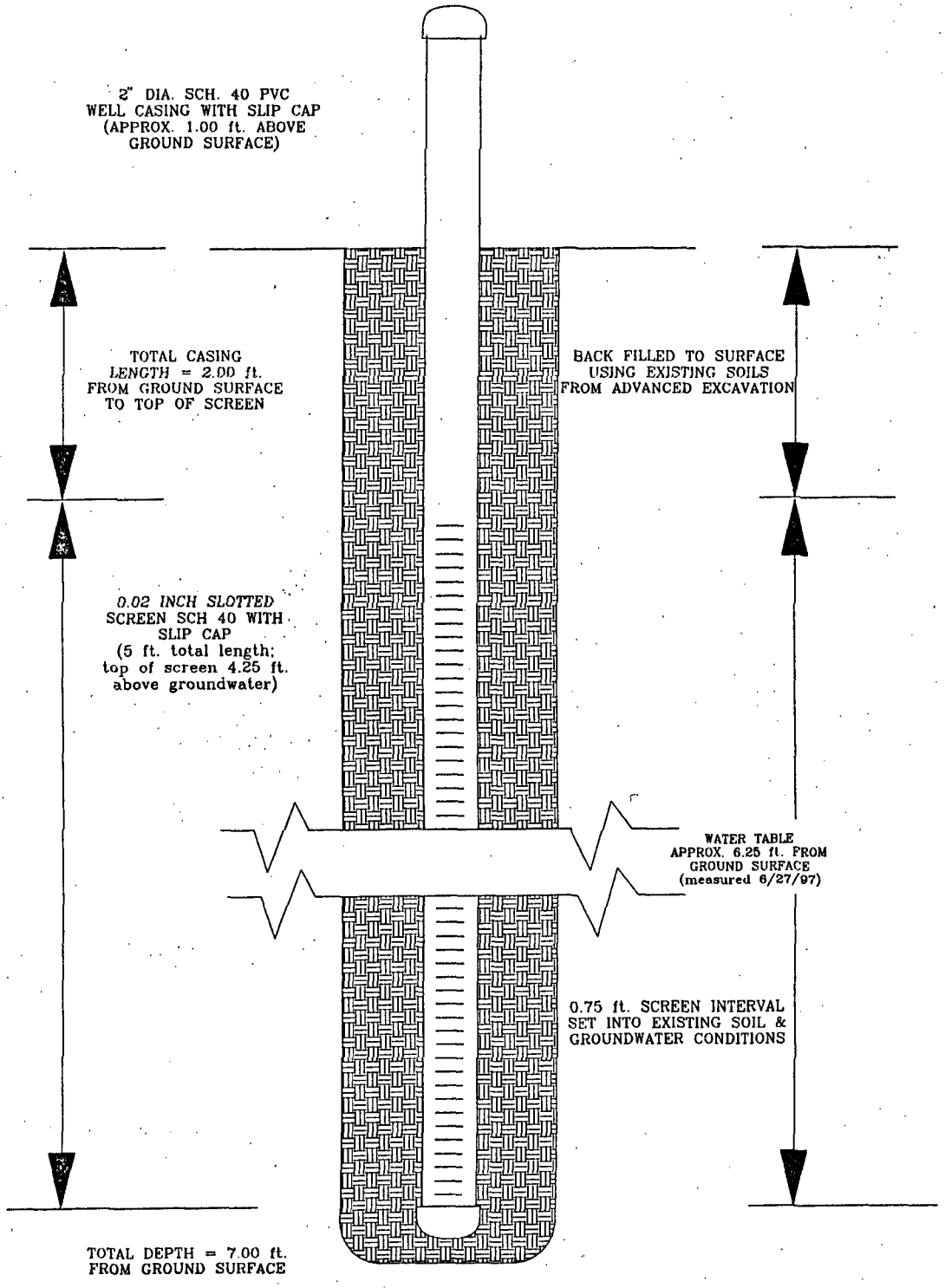
▼ GW DEPTH ON 6/7/96 = 5.75 FT. (APPROX.) FROM GROUND SURFACE.

DARK YELLOWISH BROWN SAND TO SILTY SAND CONTINUOUS THROUGHOUT ENTIRE BORING, NON COHESIVE, SLIGHTLY MOIST TO SATURATED (SCREENED INTERVAL), FIRM, NO APPARENT HYDROCARBON ODOR OBSERVED (0.0 - 18.75 FT. INTERVAL).

NOTES:
- SAND TO SILTY SAND.
- TOS - TOP OF SCREEN FROM GROUND SURFACE.
- TD - TOTAL DEPTH OF MONITOR WELL FROM GROUND SURFACE.
- GW - GROUND WATER.

DRAWING: BRUING-3	DATE: 2/07/97	DWN BY: NJV

MONITOR WELL #1A



AMOCO PRODUCTION COMPANY

BRUINGTON GC # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE DRILL RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

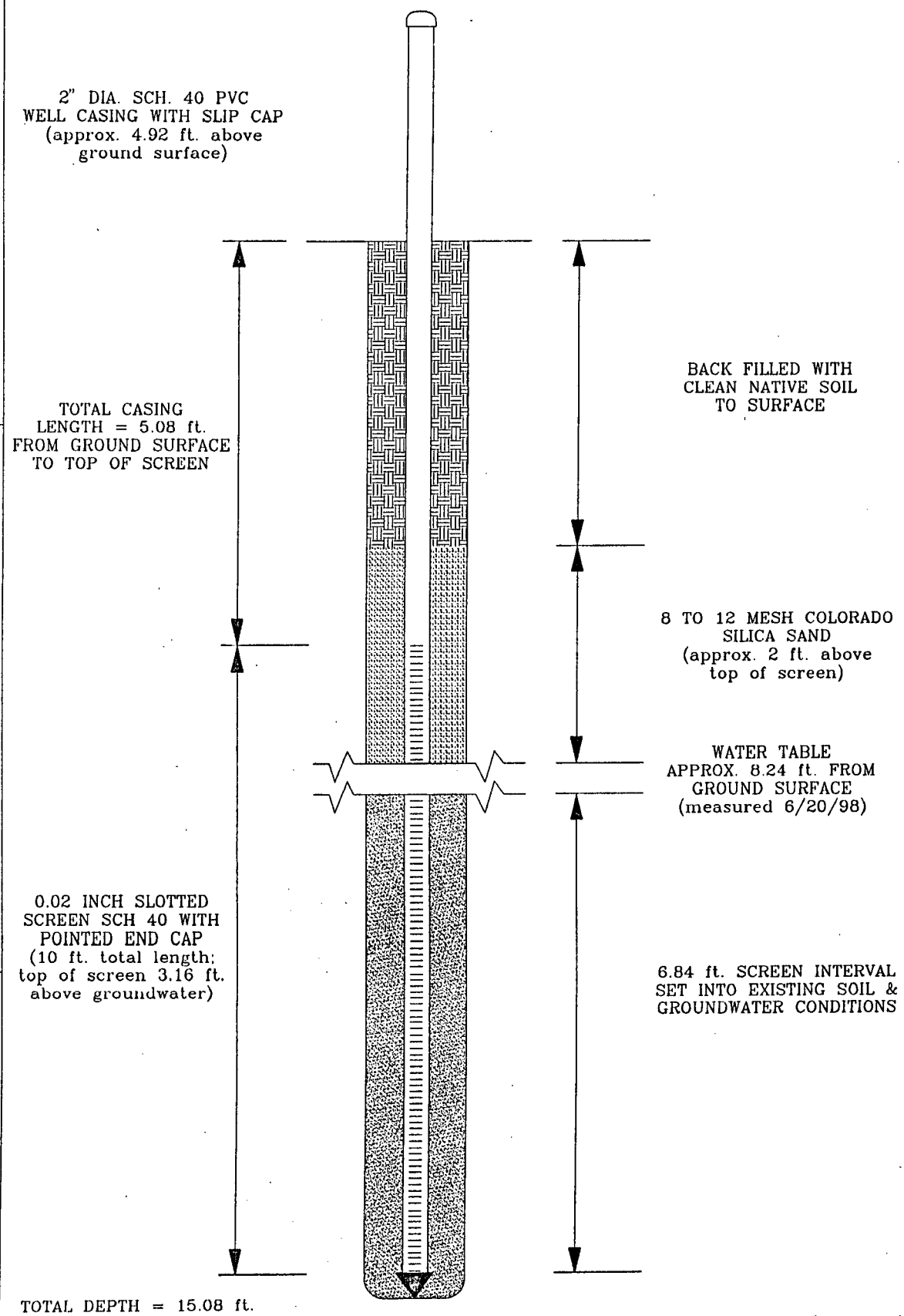
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: JUN. '97

FILENAME: MW-1

MONITOR WELL #1R



AMOCO PRODUCTION COMPANY

BRUINGTON GC # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

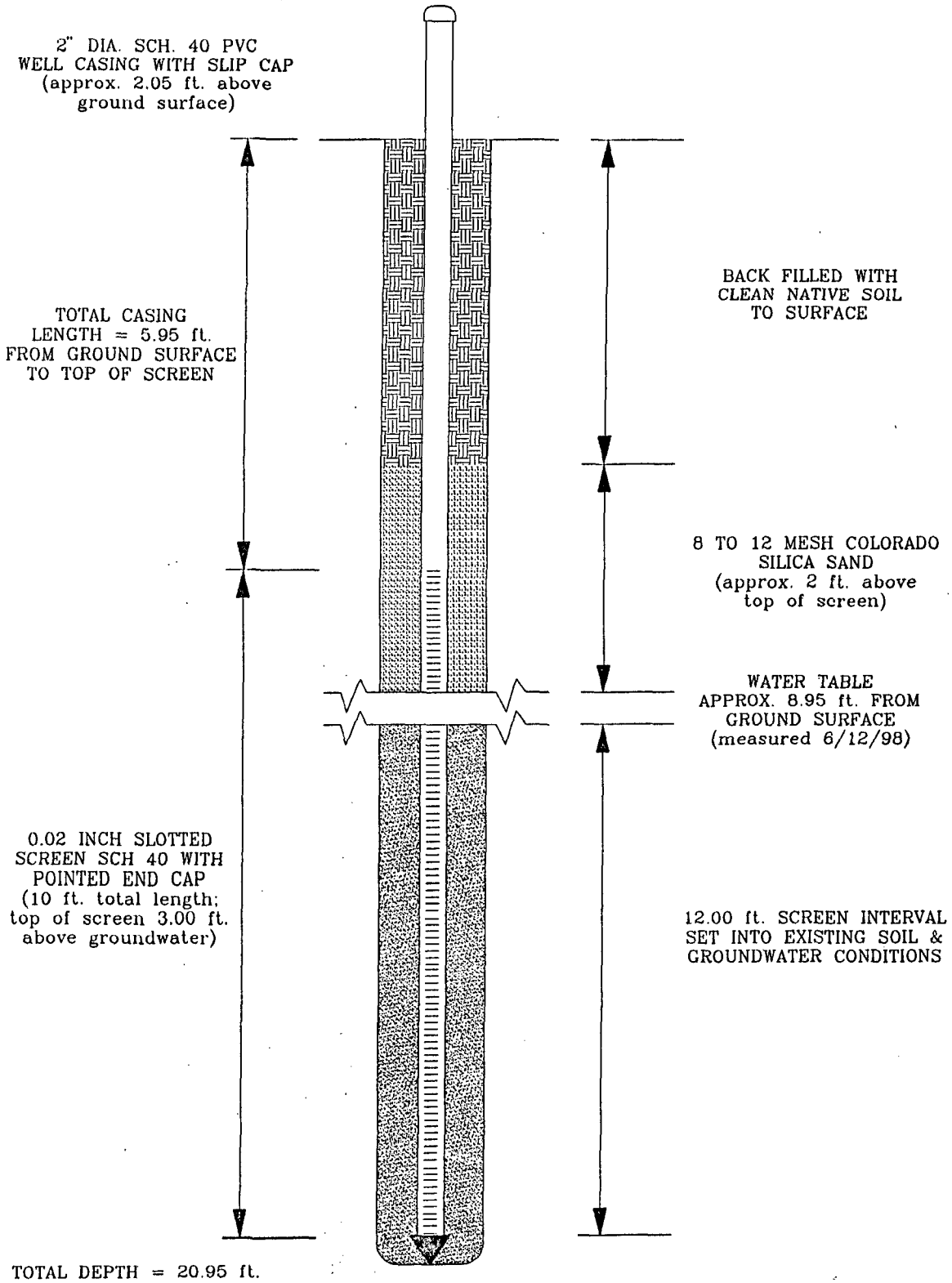
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: JUN. '98

FILENAME: MW-17

MONITOR WELL #2R



AMOCO PRODUCTION COMPANY

BRUINGTON GC # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

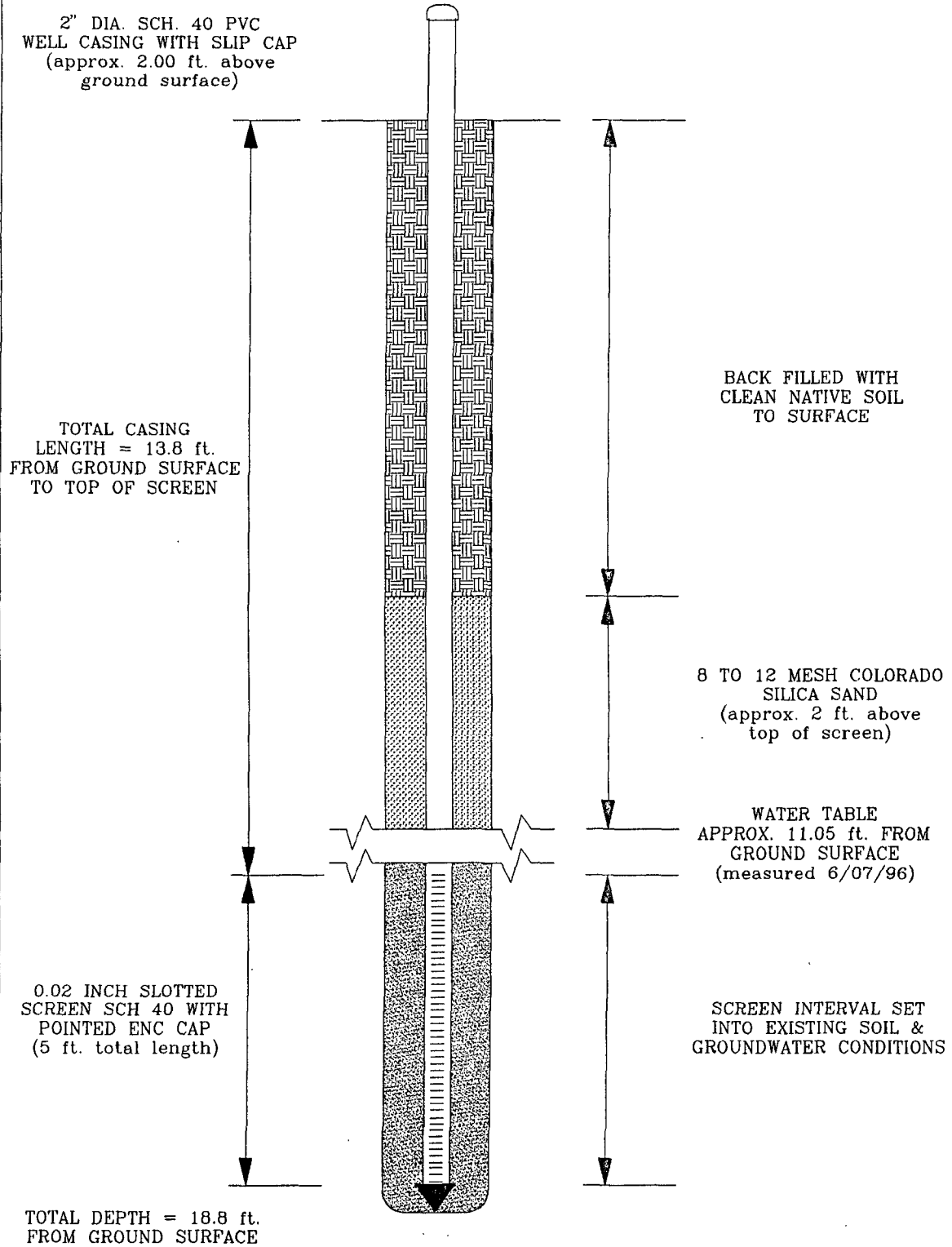
MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: JUN. '98

FILENAME: MW-2

MONITOR WELL #3



AMOCO PRODUCTION COMPANY

BRUINGTON GC # 1

MONITOR WELL CONSTRUCTION & COMPLETION

INSTALLED WITH MOBILE RIG

BLAGG ENGINEERING, INC.

CONSULTING PETROLEUM / RECLAMATION SERVICES

P.O. BOX 87

BLOOMFIELD, NEW MEXICO 87413

PHONE: (505) 632-1199

MONITOR WELL SCHEMATIC

DRAFTED BY: NJV

DATE: APR. '97

FILENAME: MW-?

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 2482

BRUINGTON GC # 1 - BLOW PIT
UNIT E, SEC. 14, T29N, R11W

LABORATORY (S) USED : ANAITAS

Date : June 7, 1996

SAMPLER : REO

Filename : 06-07-96.WK3

PROJECT MANAGER : REO

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1	95.34	82.29	13.05	21.17	1320	6.7	6,500	2.00	–
2	93.02	82.90	10.12	21.74	1340	6.7	5,500	2.60	–
3	90.52	83.52	7.00	20.36	1410	7.1	3,200	2.40	–

NOTES : Volume of water purged from well prior to sampling; V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot – small teflon bailer.

3 bails per foot – 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2 ".

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Bruington GC 1	Report Date:	06/21/96
Sample ID:	~~MW-3~~ MW-1 NV	Date Sampled:	06/07/96
Lab ID:	3809	Date Received:	06/07/96
Sample Matrix:	Water	Date Analyzed:	06/20/96
Preservative:	Cool, HgCl2		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50
Total BTEX	ND	

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	96	88 - 110%
Bromofluorobenzene	97	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Bruington GC 1	Report Date:	06/21/96
Sample ID:	MW - 2	Date Sampled:	06/07/96
Lab ID:	3808	Date Received:	06/07/96
Sample Matrix:	Water	Date Analyzed:	06/20/96
Preservative:	Cool, HgCl2		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	347	10.0
Toluene	28.5	10.0
Ethylbenzene	156	10.0
m,p-Xylenes	1,580	20.0
o-Xylene	ND	10.0

Total BTEX	2,110

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	94	88 - 110%
Bromofluorobenzene	96	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

PURGEABLE AROMATICS

Blagg Engineering, Inc.

Project ID:	Bruington GC 1	Report Date:	06/21/96
Sample ID:	~~MW-1~~ MW-3 MS	Date Sampled:	06/07/96
Lab ID:	3807	Date Received:	06/07/96
Sample Matrix:	Water	Date Analyzed:	06/20/96
Preservative:	Cool, HgCl2		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	1.84	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50

Total BTEX	1.84

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	105	88 - 110%
Bromofluorobenzene	102	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	Bruington GC 1	Date Reported:	06/21/96
Sample ID:	~~MW-3~~ MW-1 SNT	Date Sampled:	06/07/96
Laboratory ID:	3809	Time Sampled:	14:10
Sample Matrix:	Water	Date Received:	06/07/96

Parameter		Analytical Result	Units
General	Lab pH	7.6	s.u.
	Lab Conductivity @ 25° C	4,110	µmhos/cm
	Total Dissolved Solids @ 180°C	5,570	mg/L
	Total Dissolved Solids (Calc)	5,240	mg/L
Anions	Total Alkalinity as $CaCO_3$	201	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	201	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	82.5	mg/L
	Sulfate	3,430	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	1,540	mg/L
	Calcium	575	mg/L
	Magnesium	24.6	mg/L
	Potassium	< 5.0	mg/L
	Sodium	1,000	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	2.34	+/- 5 %
	TDS (180):TDS (calculated)	1.1	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality

Blagg Engineering, Inc.

Project ID:	Bruington GC 1	Date Reported:	06/21/96
Sample ID:	MW - 2	Date Sampled:	06/07/96
Laboratory ID:	3808	Time Sampled:	13:40
Sample Matrix:	Water	Date Received:	06/07/96

Parameter		Analytical Result	Units
General	Lab pH	7.2	s.u.
	Lab Conductivity @ 25° C	8,270	µmhos/cm
	Total Dissolved Solids @ 180°C	7,980	mg/L
	Total Dissolved Solids (Calc)	7,710	mg/L
Anions	Total Alkalinity as $CaCO_3$	430	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	430	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	147	mg/L
	Sulfate	4,730	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	939	mg/L
	Calcium	366	mg/L
	Magnesium	6.16	mg/L
	Potassium	< 5.0	mg/L
	Sodium	2,200	mg/L

Data Validation			Acceptance Level
	Cation/Anion Difference	1.47	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANAITAS ENVIRONMENTAL LABS

General Water Quality
Blagg Engineering, Inc.

Project ID:	Bruington GC 1	Date Reported:	06/21/96
Sample ID:	~~MW-1~~ MW-3 NV	Date Sampled:	06/07/96
Laboratory ID:	3807	Time Sampled:	13:20
Sample Matrix:	Water	Date Received:	06/07/96

Parameter		Analytical Result	Units
General	Lab pH	7.2	s.u.
	Lab Conductivity @ 25° C	10,400	µmhos/cm
	Total Dissolved Solids @ 180°C	10,300	mg/L
	Total Dissolved Solids (Calc)	10,000	mg/L
Anions	Total Alkalinity as $CaCO_3$	501	mg/L
	Bicarbonate Alkalinity as $CaCO_3$	501	mg/L
	Carbonate Alkalinity as $CaCO_3$	NA	mg/L
	Hydroxide Alkalinity as $CaCO_3$	NA	mg/L
	Chloride	295	mg/L
	Sulfate	5,990	mg/L
	Nitrate + Nitrite - N	NA	
	Nitrate - N	NA	
	Nitrite - N	NA	
Cations	Total Hardness as $CaCO_3$	1,210	mg/L
	Calcium	672	mg/L
	Magnesium	< 0.1	mg/L
	Potassium	6.00	mg/L
	Sodium	2,900	mg/L
Data Validation			Acceptance Level
	Cation/Anion Difference	2.55	+/- 5 %
	TDS (180):TDS (calculated)	1.0	1.0 - 1.2

Reference U.S.E.P.A. 600/4-79-020, Methods for Chemical Analysis of Water and Wastes, 1983.
Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Review

ANAITAS
ENVIRONMENTAL LABS

June 21, 1996

Bob O'Neill
Blagg Engineering, Inc.
PO Box 87
Bloomfield, NM 87413

Dear Mr. O'Neill:

Enclosed are the results for the analysis of the samples received June 7, 1996. The samples were from the Bruington GC 1 site. Analyses for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) and general water quality parameters were performed on the samples, as per the accompanying chain of custody form.

Analysis was performed on the samples according to EPA Method 602, using a Hewlett-Packard 5890 gas chromatograph equipped with an OI Analytical purge and trap (model 4560) and a photoionization detector. Detectable levels of btex analytes were found in the samples, as reported.

Water parameters were determined for the samples according to the appropriate methodologies as outlined in Standard Methods for the Examination of Water and Wastewater, 18th edition, 1992.

Quality control reports appear at the end of the analytical package and can be identified by title. Should you have any questions regarding the analysis, feel free to call.

Sincerely,

Denise A. Bollemier
Lab Director

807 SOUTH CARLTON • FARMINGTON, NM 87401 • (505) 326-2395 PH • 326-2486 FAX

PURGEABLE AROMATICS

Quality Control Report

Method Blank Analysis

Sample Matrix:	Water	Report Date:	06/21/96
Lab ID:	MB35236	Date Analyzed:	06/20/96

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
m,p-Xylenes	ND	1.00
o-Xylene	ND	0.50

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	98	88 - 110%
Bromofluorobenzene	100	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

Purgeable Aromatics

Duplicate Analysis

Lab ID:	3808Dup	Report Date:	06/21/96
Sample Matrix:	Water	Date Sampled:	06/07/96
Preservative:	Cool, HgCl2	Date Received:	06/07/96
Condition:	Intact	Date Analyzed:	06/20/96

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	347	339	280 - 406
Toluene	28.5	26.2	21.5 - 33.2
Ethylbenzene	156	148	99.4 - 205
m,p-Xylenes	1,580	1,550	NE
o-Xylene	ND	ND	NE

ND - Analyte not detected at the stated detection limit.
NA - Not applicable or not calculated.
NE - Duplicate acceptance range not established by the EPA.

	Surrogate	Percent Recovery	Acceptance Limits
Quality Control:	Trifluorotoluene	99	88 - 110%
	Bromofluorobenzene	97	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

Purgeable Aromatics

Matrix Spike Analysis

Lab ID:	3807Spk	Report Date:	06/21/96
Sample Matrix:	Water	Date Sampled:	06/07/96
Preservative:	Cool, HgCl2	Date Received:	06/07/96
Condition:	Intact	Date Analyzed:	06/20/96

Target Analyte	Spike Added (ug/L)	Original Conc. (ug/L)	Spiked Sample Conc. (ug/L)	% Recovery	Acceptance Limits (%)
Benzene	10	ND	10.5	101%	39 -150
Toluene	10	1.84	11.5	97%	46 - 148
Ethylbenzene	10	ND	10.5	103%	32 - 160
m,p-Xylenes	20	ND	20.9	102%	NE
o-Xylene	10	ND	10.2	98%	NE

ND - Analyte not detected at the stated detection limit.
NA - Not applicable or not calculated.
NE - Spike acceptance range not established by the EPA.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Trifluorotoluene	103	88 - 110%
Bromofluorobenzene	104	86 - 115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

General Water Quality
Quality Control Report

Blagg Engineering, Inc.

Report Date: 6/21/96

Parameter	Analytical Result	Certified Value	Acceptance Range	Units
Laboratory pH	8.96	9.05	8.85 - 9.25	s.u.
Conductivity	1374	1210	1030 - 1400	µmhos/cm
Total Dissolved Solids	900	905	787 - 1020	mg/L
Total Alkalinity	167	174	155 - 193	mg/L
Chloride	152	155	144 - 166	mg/L
Sulfate	107	116	99.8 - 132	mg/L
Total Hardness	232	254	218 - 290	mg/L
Calcium	60.7	54.6	47.0 - 62.2	mg/L
Magnesium	NA	NA	NA	mg/L
Potassium	110	112	95.2 - 129	mg/L
Sodium	180	180	153 - 207	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. Standard Methods For The Examination Of Water And Wastewater, 18th ed., 1992.

Comments:

Review

ANAITAS ENVIRONMENTAL LABS

807 S. CARLTON • FARMINGTON, NM 87401 • (505) 326-2395

CHAIN OF CUSTODY

PROJECT MANAGER:
Anaitas Lab I.D.:

Company: BLAGG
Address:

Phone: 632-1199
Fax:

Bill To: SAME
Company:
Address:

Sample ID	Date	Time	Matrix	Lab ID	Petroleum Hydrocarbons (418.1)	Gasoline / Diesel (mod. 8015)	Gasoline (GRO)	Aromatic HCs BTEX/MTBE (602 / 8020)	Chlorinated Hydrocarbons (8010)	SDWA Volatiles (502.1 / 503.1)	Chlorinated Pesticides / PCBs (608 / 8080)	Herbicides (615 / 8150)	Volatiles GC/MS (624 / 8240 / 8260)	Base / Neutral / Acid GC/MS (625 / 8270)	Polynuclear Aromatic Hydrocarbons (8100)	TCLP Extraction	Other (specify):	Cation / Anion	Specific Cations (specify):	Specific Anions (specify):	BOD / Fecal / Total Coliform	Solids: TDS / TSS / SS	Nutrients: NH4+ / NO2- / NO3- / TKN	Oil and Grease	Other (specify):	Priority Pollutants	RCRA Metals (Total)	RCRA Metals TCLP (1311)	Other (specify):	COMMENTS
MW-1	6-7	1320	WATER					✓										✓											
MW-2	"	1340	"					✓										✓											
MW-3	"	1410	"					✓										✓											

Project Information	Sample Receipt
Proj. #:	No. Containers:
Proj. Name: AMOCO	Custody Seals: Y / N / NA
P. O. No:	Received Intact:
Shipped Via: DELD	Received Cold:

Required Turnaround Time (Prior Authorization Required for Rush)

BRUINGTON GC 1

Sampled By:	Relinquished By:	Relinquished By:
Signature / Date: RLO 6-7-96	Signature / Date: RLO 6-7-96	Signature / Date:
Company: BEI / Time: —	Company: BEI / Time: 1445	Company: / Time:
Received By:	**Received By:**	**Received By:**
Signature / Date:	Signature / Date:	Signature / Date: M. Williams 6/7/96
Company: / Time:	Company: / Time:	Company: / Time: Johnston 2:45

Please Fill Out Thoroughly.

Shaded areas for lab use only.

White/Yellow: Anaitas
Pink: Client

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 5123

BRUINGTON GC # 1 - BLOW PIT
UNIT E, SEC. 14, T29N, R11W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : *June 27, 1997*

SAMPLER : N J V

Filename : *06-27-97.WK3*

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING	pH TIME	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1A	89.55	82.30	7.25	8.00	-	-	-	-	-
2	93.02	80.37	12.65	14.47	0900	6.9	4,800	1.00	-
3	95.34	82.00	13.34	17.00	-	-	-	-	-

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2 ".

Drilled MW # 1A immediately adjacent to MW # 1 on 6 / 17 / 97 . Tot. Leng. = 8 ft., screen invertal = 5 ft., top of casing approx. 1 ft. above ground surface . Also pulled up 7.47 ft. of casing from MW # 2 & 3.00 ft. from MW # 3 (compensation for extreme water level difference between summer & winter - see notes on following page) .

BRUINGTON GC # 1

DATE RECORDED: JUNE 16, 1997

MW # 1		MW # 2		MW # 3	
DTW FR/ TOC =	6.35	DTW FR/ TOC =	10.03	DTW FR/ TOC =	13.18
TOC AGS -	1.25	TOC AGS -	1.90	TOC AGS -	2.00
DTW FR/ GS =	5.10	DTW FR/ GS =	8.13	DTW FR/ GS =	11.18
SCREEN INTERVAL FR/ GS	13.75 | 18.75	SCREEN INTERVAL FR/ GS	14.50 | 19.50	SCREEN INTERVAL FR/ GS	13.80 | 18.80
ABOVE SCREEN ->	8.65	ABOVE SCREEN ->	6.37	ABOVE SCREEN ->	2.62

DTW = DEPTH TO WATER
FR/ = FROM
TOC = TOP OF CASING
AGS = ABOVE GROUND SURFACE
GS = GROUND SURFACE
TD = TOTAL DEPTH

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Blagg / Amoco	Project #:	04034-10
Sample ID:	MW #2	Date Reported:	07-01-97
Chain of Custody:	5123	Date Sampled:	06-27-97
Laboratory Number:	B554	Date Received:	06-27-97
Sample Matrix:	Water	Date Analyzed:	06-30-97
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**429**	**10**	**1.8**
Toluene	**67.9**	**10**	**1.7**
Ethylbenzene	**46.1**	**10**	**1.5**
p,m-Xylene	**334**	**10**	**2.2**
o-Xylene	**68.4**	**10**	**1.0**
Total BTEX	**946**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**99 %**
	Bromofluorobenzene	**99 %**

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: **Bruington GC #1.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

CHAIN OF CUSTODY RECORD

Client/Project Name: BLAGG / AMOCO

Project Location: BRUINGTON GC #1

Sampler: (Signature) Nelson Velez

Chain of Custody Tape No.:

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8020)						Remarks
MW #2	6/27/97	0900	B554	WATER	2	✓						PRESERV. - COOL & HgCl2

Sample received cool & intact DA

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	6/27/97	1443	Denise L. Aguirre	6-27-97	1443

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

QUALITY ASSURANCE / QUALITY CONTROL

DOCUMENTATION

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Laboratory Blank	Date Reported:	06-30-97
Laboratory Number:	06-30-BTEX.BLANK	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-30-97
Condition:	N/A	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	**ND**	**0.2**
Toluene	**ND**	**0.2**
Ethylbenzene	**ND**	**0.2**
p,m-Xylene	**ND**	**0.2**
o-Xylene	**ND**	**0.1**

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**99 %**
	Bromofluorobenzene	**99 %**

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for samples B548 - B554.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Duplicate	Date Reported:	06-30-97
Laboratory Number:	B548	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	HgCl and Cool	Date Analyzed:	06-30-97
Condition:	Cool and Intact	Analysis Requested:	BTEX-8020

Parameter	Sample Result (ug/L)	Duplicate Result (ug/L)	Percent Diff.	Det. Limit (ug/L)	Dilution Factor
Benzene	**ND**	**ND**	**0.0%**	**0.2**	**1**
Toluene	**ND**	**ND**	**0.0%**	**0.2**	**1**
Ethylbenzene	**0.2**	**0.2**	**0.0%**	**0.2**	**1**
p,m-Xylene	**0.5**	**0.5**	**0.0%**	**0.2**	**1**
o-Xylene	**0.2**	**0.2**	**0.0%**	**0.1**	**1**

ND - Parameter not detected at the stated detection limit.

QA/QC Acceptance Criteria:	Parameter	Maximum Difference
	8020 Compounds	**30 %**

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for samples B548 - B554.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	QA/QC	Project #:	N/A
Sample ID:	Matrix Spike	Date Reported:	06-30-97
Laboratory Number:	B548	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	Cool	Date Analyzed:	06-30-97
Condition:	Cool and Intact		

Parameter	Sample Result (ug/L)	Spike Added (ug/L)	Spiked Sample Result (ug/L)	Det. Limit (ug/L)	Percent Recovery	SW-846 % Rec. Accept. Range
Benzene	**ND**	**50.0**	**50.2**	**0.2**	**100%**	**39-150**
Toluene	**ND**	**50.0**	**50.0**	**0.2**	**100%**	**46-148**
Ethylbenzene	**0.2**	**50.0**	**50.1**	**0.2**	**100%**	**32-160**
p,m-Xylene	**0.5**	**100**	**100**	**0.2**	**100%**	**46-148**
o-Xylene	**0.2**	**50.0**	**50.1**	**0.1**	**100%**	**46-148**

ND - Parameter not detected at the stated detection limit.

References: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992.

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1994.

Comments: **QA/QC for samples B548 - B554.**

Analyst

Review

5796 U.S. Highway 64-3014 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

BLAGG ENGINEERING, INC.

MONITOR WELL SAMPLING DATA

CLIENT : AMOCO PRODUCTION CO.

CHAIN-OF-CUSTODY # : 6024

BRUINGTON GC # 1 - BLOW PIT
UNIT E, SEC. 14, T29N, R11W

LABORATORY (S) USED : ENVIROTECH, INC.

Date : June 12, 1998

SAMPLER : N J V

Filename : 06-12-98.WK3

PROJECT MANAGER : N J V

WELL #	WELL ELEV. (ft)	WATER ELEV. (ft)	DEPTH TO WATER (ft)	TOTAL DEPTH (ft)	SAMPLING TIME	pH	CONDUCT (umhos)	VOLUME PURGED (gal.)	FREE PRODUCT (ft)
1R	94.45	81.29	13.16	20.00	measured on June 20, 1998.				
2	-	-	-	15.00	no gw encountered May 30, 1998.				
2R	93.13	79.29	13.84	20.95	1420	7.6	3,500	5.00	-
3	95.24	80.97	14.27	18.08	-	-	-	-	-

NOTES : Volume of water purged from well prior to sampling: V = pi X r2 X h X 7.48 gal./ft3) X 3 (wellbores).

(i.e. 2" MW r = (1/12) ft. h = 1 ft.) (i.e. 4" MW r = (2/12) ft. h = 1 ft.)

Ideally a minimum of three (3) wellbore volumes:

1.25 " well diameter = 0.19 gallons per foot of water (or 24 oz.).

2 bails per foot - small teflon bailer.

3 bails per foot - 3 / 4 " teflon bailer.

2.00 " well diameter = 0.49 gallons per foot of water.

4.00 " well diameter = 1.95 gallons per foot of water.

Comments or note well diameter if not standard 2 ".

MW # 1 top of casing broken off @ ground surface. No groundwater encountered in MW # 1A or # 2 during May 30, 1998 visit. Drilled MW # 2R - 6 / 5 / 98. Tot. Leng. = 23 ft., screen interval = 15 ft., top of casing approx. 2.05 ft. above ground surface. Drilled MW # 1R - 6 / 19 / 98. Tot. Leng. = 20 ft., screen interval = 10 ft., top of casing approx. 4.92 ft. above ground surface.

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS

Client:	Blagg / AMOCO	Project #:	04034-10
Sample ID:	MW #2	Date Reported:	06-16-98
Chain of Custody:	6024	Date Sampled:	06-12-98
Laboratory Number:	D413	Date Received:	06-14-98
Sample Matrix:	Water	Date Analyzed:	06-16-98
Preservative:	HgCl2 & Cool	Analysis Requested:	BTEX
Condition:	Cool & Intact		

Parameter	Concentration (ug/L)	Dilution Factor	Det. Limit (ug/L)
Benzene	**13,440**	**50**	**8.8**
Toluene	**13,330**	**50**	**8.4**
Ethylbenzene	**1,030**	**50**	**7.6**
p,m-Xylene	**4,360**	**50**	**10.8**
o-Xylene	**1,680**	**50**	**5.2**
Total BTEX	**33,840**		

ND - Parameter not detected at the stated detection limit.

Surrogate Recoveries:	Parameter	Percent Recovery
	Trifluorotoluene	**96 %**
	Bromofluorobenzene	**96 %**

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA December 1996.

Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **Bruington GC #1.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

CHAIN OF CUSTODY RECORD

6024

Client / Project Name	Project Location	ANALYSIS / PARAMETERS
BLAGG / AMOCO	BRUINGTON GC #1	
Sampler: NJV	Client No. 04034-10	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	BTEX (8021)						Remarks
MW #2	6/12/98	1420	D413	WATER	2	✓						PRESERV. - $HgCl_2$ & COOL

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Nelson Velez	6/14/98	1510	Alma L. Ojeda	6.14.98	1510
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

RP COC's 6021, 6023 - 6024, 6026 - 6028

ENVIROTECH INC.
5796 U.S. Highway 64
Farmington, New Mexico 87401
(505) [illegible]2-0615

Sample Receipt	Y	N	N/A
Received Intact	✓		
Cool - Ice/Blue Ice	✓		

ENVIROTECH LABS

PRACTICAL SOLUTIONS FOR A BETTER TOMORROW

EPA METHOD 8021
AROMATIC VOLATILE ORGANICS
QUALITY ASSURANCE REPORT

Client:	N/A	Project #:	N/A
Sample ID:	06-16-BTEX QA/QC	Date Reported:	06-16-98
Laboratory Number:	D409	Date Sampled:	N/A
Sample Matrix:	Water	Date Received:	N/A
Preservative:	N/A	Date Analyzed:	06-16-98
Condition:	N/A	Analysis:	BTEX

Calibration and Detection Limits (ug/L)	I-Cal RF:	C-Cal RF:	%Diff. Accept. Range 0 - 15%	Blank Conc	Detect. Limit
Benzene	5.4370E-02	5.4424E-02	**0.10%**	**ND**	**0.2**
Toluene	2.9051E-02	2.9138E-02	**0.30%**	**ND**	**0.2**
Ethylbenzene	2.6516E-02	2.6730E-02	**0.81%**	**ND**	**0.2**
p,m-Xylene	1.8915E-02	1.9048E-02	**0.70%**	**ND**	**0.2**
o-Xylene	2.1590E-02	2.1720E-02	**0.60%**	**ND**	**0.1**

Duplicate Conc. (ug/L)	Sample	Duplicate	%Diff.	Accept Limit
Benzene	**ND**	**ND**	**0.0%**	**0 - 30%**
Toluene	**ND**	**ND**	**0.0%**	**0 - 30%**
Ethylbenzene	**ND**	**ND**	**0.0%**	**0 - 30%**
p,m-Xylene	**0.8**	**0.8**	**0.0%**	**0 - 30%**
o-Xylene	**ND**	**ND**	**0.0%**	**0 - 30%**

Spike Conc. (ug/L)	Sample	Amount Spiked	Spiked Sample	% Recovery	Accept Limits
Benzene	**ND**	**50.0**	**50.0**	**100%**	**39 - 150**
Toluene	**ND**	**50.0**	**50.0**	**100%**	**46 - 148**
Ethylbenzene	**ND**	**50.0**	**50.0**	**100%**	**32 - 160**
p,m-Xylene	**0.8**	**100.0**	**101**	**100%**	**46 - 148**
o-Xylene	**ND**	**50.0**	**50.0**	**100%**	**46 - 148**

ND - Parameter not detected at the stated detection limit.

References: Method 5030B, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, December 1996.
Method 8021B, Aromatic and Halogenated Volatiles by Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors, SW-846, USEPA December 1996.

Comments: **QA/QC for samples D409- D416.**

Analyst

Review

5796 U.S. Highway 64 • Farmington, NM 87401 • Tel 505 • 632 • 0615 • Fax 505 • 632 • 1865

LAB RESULTS TO PAUL V. ON 11-3-93. SOIL OK, WATER CONTAMINATED.
OVM RESULTS TO PAUL V. ON 10-20-93
(VERY CONTAMINATED)

ENVIROTECH Inc.

5796 US HWY. 64, FARMINGTON, NM 87401
(505) 632-0615

PIT NO: C4948
C.O.C. NO: 3141

FIELD REPORT: CLOSURE VERIFICATION

JOB No: 92140
PAGE No: 1 of 1

LOCATION: LEASE: BRUINGTON GAS COM WELL #1 QD: SW/4, NW/4 (E)
SEC. 14 TWP: 29N RNG: 11W BM: NM CNTY: SJ ST: NM PIT: BLOW
CONTRACTOR: PAUL VELASQUEZ
EQUIPMENT USED: EXCAVATOR

DATE STARTED: 10-20-93
DATE FINISHED: 10-27-93
ENVIRONMENTAL SPECIALIST: REO

SOIL REMEDIATION: QUANTITY: EXCAVATION APPROX. 40' x 75' x 20' MAX. DEEP.
DISPOSAL FACILITY: CROUCH MESA
LAND USE: RESIDENTIAL/INDUSTRIAL
SURFACE CONDITIONS: EXCAVATED PRIOR TO ARRIVAL

FIELD NOTES & REMARKS: PIT LOCATED APPROXIMATELY 125 FEET SOUTH FROM WELLHEAD. EXCAVATION 18-20' DEEP - TOP 8-10' APPEARS UNCONTAMINATED. FROM 8'-10' DOWN, HEAVY CONTAMINATION EVIDENCED BY DARK GRAY TO BLACK, WITH HEAVY PETROLEUM ODOR. SOIL IS SILTY SAND, BOTTOM @ 18-20' IS SANDSTONE BEDROCK. WATER SLOWLY SEEPING IN TO EXCAVATION.
IRRIGATION CANAL ~ 100 DOWNGRADIENT TO THE SOUTHWEST.
EXCAVATION CONTINUING ON WEST END OF PIT AT THIS TIME,
10/27: LEDGE ROCK ON SOUTH EDGE OF EXCAVATION @ ~ 12' DEEP. COARSE SANDY SOIL.

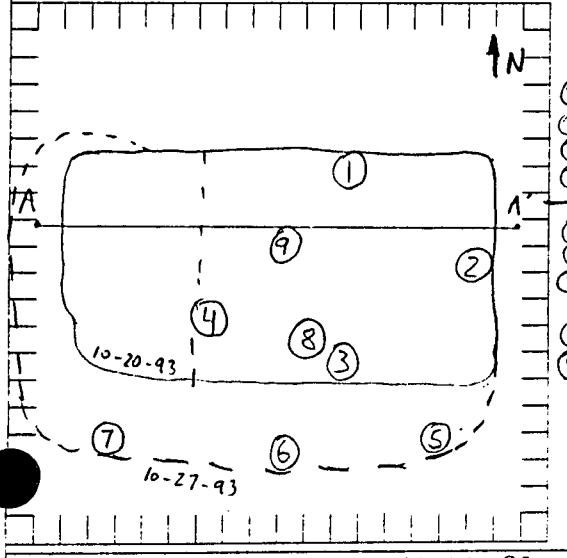
FIELD 418.1 CALCULATIONS

SAMPLE I.D.	LAB No:	WEIGHT (g)	mL. FREON	DILUTION	READING	CALC. ppm

DEPTH TO GROUNDWATER:
NEAREST WATER SOURCE: CANAL ~ 100'
NEAREST SURFACE WATER:
NMOCD RANKING SCORE:
NMOCD TPH CLOSURE STD: 100 PPM TPH

SCALE
0 10 20 FEET

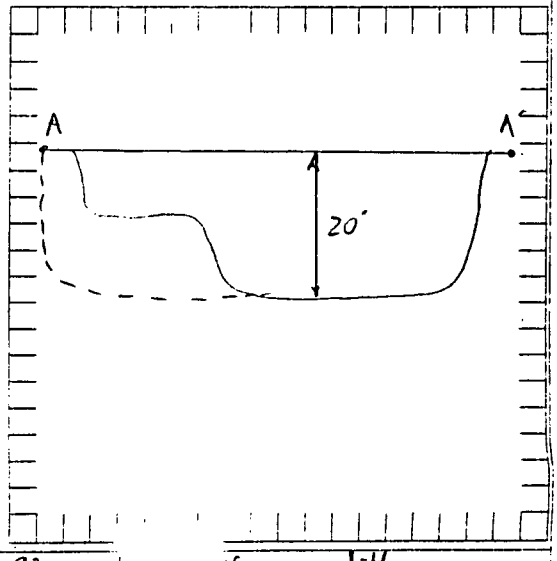
PIT PERIMETER



OVM RESULTS

SAMPLE ID	FIELD HEADSPACE PID (ppm)
① NS @ 15'	625
② ES @ 14'	598
③ SS @ 15'	710
④ WSS @ 15'	736
⑤ SES @ 12'	6.0
⑥ SCS @ 12'	ND
⑦ SWS @ 12'	ND
⑧ SB @ 17'	3.6
⑨ CB @ 18'	WATER
LAB	
⑧ 418.1	SOIL
⑨ BTEX	WATER

PIT PROFILE



TRAVEL NOTES: CALLOUT: 10-20-93, 10-27-93 ONSITE: 10-20-93, 10-27-93

S. 1-4
S. 5-9

REO

ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	8 SB @ 17'	Date Sampled:	10-27-93
Laboratory Number:	6409	Date Received:	10-27-93
Sample Matrix:	Soil	Date Analyzed:	11-02-93
Preservative:	Cool	Date Reported:	11-02-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	ND	10.0

ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Blow Pit, C4948.

Tony Tristano
Analyst

David Young
Review

ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	9 CB @ 18'	Date Reported:	10-28-93
Laboratory Number:	6410	Date Sampled:	10-27-93
Sample Matrix:	Water	Date Received:	10-27-93
Preservative:	HgCl and Cool	Date Analyzed:	10-28-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	3,320	1.0
Toluene	3,500	2.0
Ethylbenzene	87	1.0
p,m-Xylene	2,010	1.5
o-Xylene	448	1.5

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	101 %
Bromofluorobenzene	102 %

Method: Method 5030A, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948

Analyst

Review

3141

CHAIN OF CUSTODY RECORD

C4948

Client/Project Name	Project Location	ANALYSIS/PARAMETERS
AMOCO # 92140	BRUINGTON GC #1 Blow PIT	
Sampler: (Signature) R. E. Oldfield	Chain of Custody Tape No.	

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	418.1	BTEX					Remarks
(8) SB @ 17'	10-27-93	1125	6409	SOIL	1	✓						
(9) CB @ 18'	10-27-93	1140	6410	WATER	2		✓					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
R. E. Oldfield	10-27-93	1430	Tony Tristano	10/27/93	1430
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

LAB Results Reported to P. Velasquez on 12/02/93 by Rmy. Recommended additional Soil/Groundwater Remedia

ENVIROTECH Inc

C4948

5796 US HWY 64 FARMINGTON NM 87401
(505) 632-0615

COC 3179

FIELD REPORT: CLOSURE VERIFICATION

JOB No. 92140
PAGE No. 1 of 1

LOCATION: LEASE BRUINGTON GAS COM WELL #1 QD SW/4 NW/4 (E)
SEC. 14 TWP 29N RNG. 11W BM. NMPM CNTY. SJ ST NM PIT BLOW
CONTRACTOR PAUL VELASQUEZ
EQUIPMENT USED TRACK HOE

DATE STARTED 11/10/93
DATE FINISHED 11/10/93
ENVIRONMENTAL SPECIALIST Rmy

SOIL REMEDIATION: QUANTITY
DISPOSAL FACILITY CROUCH MESA
LAND USE RESIDENTIAL/INDUSTRIAL
SURFACE CONDITIONS: EXCAVATED PRIOR TO ARRIVAL

FIELD NOTES & REMARKS: PIT CENTER LOCATED APPROXIMATELY 40-50 yds YARDS S40W FROM WELLHEAD

DEPTH TO GROUNDWATER 12'-15'
NEAREST WATER SOURCE UNKNOWN
NEAREST SURFACE WATER 100'-CANAL

According to Mr. Velasquez, All areas of pit have been previously closed with the exception of the 2 Sandstone benches and the bottom (below Groundwater)

This Pit is a combined excavation of both the Blow Pit and the Separator Pit.

① Sample of top 1" & Sandstone (Gray Discoloration) (BTEX/TPH LAB)
② Sample of SM/ML 1 Foot Above Sandstone (Gray Discoloration) (BTEX/TPH LAB)
③ Sample of Groundwater for Laboratory Analysis

X Sample locations per Mr. Velasquez.

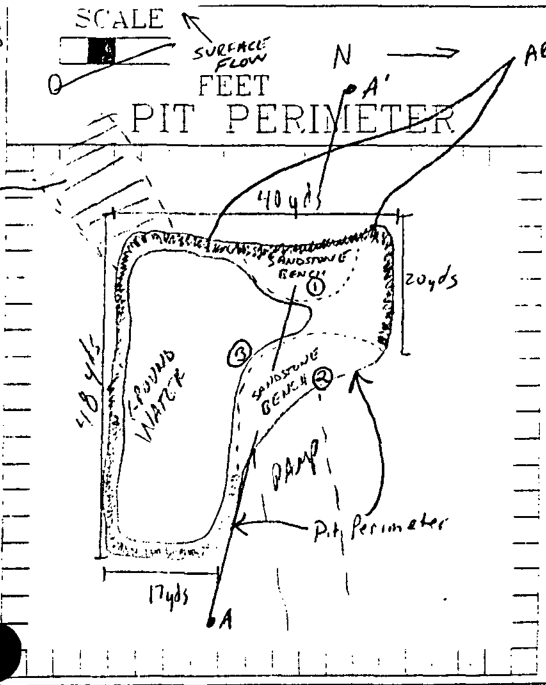
Recommend Conditional Closure Pending Removal of 2'-3' Contaminated Sand layer directly above Sandstone @ Sample Point ②, covering entire bench area on North Side. Recommend Monitor well for Groundwater Verification.

SAMPLE I.D. | LAB No. | WEIGHT (g) | mL FREON | DILUTION | READING | CALC. ppm

Areas that have been reported as closed, then backfilled

SCALE 0 FEET

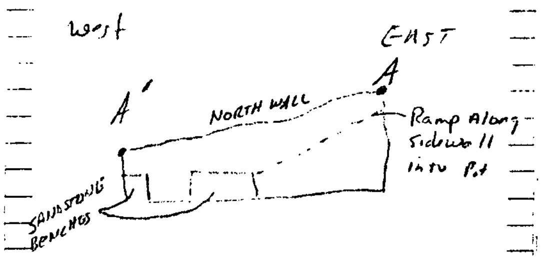
PIT PERIMETER



OVM RESULTS

SAMPLE I.D.	FIELD HEADSPACE PID (ppm)
① @ 10'	677 ppm
② @ 9'	604 ppm

PIT PROFILE



SIDEWALLS ARE SM/ML ON SANDSTONE.
0'-10' Silty Sand, loose, non-coh, pale yellowish brown, visible gray discoloration on east sandstone bench.
10'-15'
Sandstone: Pale yell brown, gray on top 1"-2".

TRAVEL NOTES CALLOUT: ONSITE:

R E

ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	#1 @ 10' bgs	Date Sampled:	11-10-93
Laboratory Number:	6476	Date Received:	11-10-93
Sample Matrix:	Soil	Date Analyzed:	11-12-93
Preservative:	Cool	Date Reported:	11-12-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	310	10.0

ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Blow Pit, C4948

Tony Tristano
Analyst

Review

ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	#1 @ 10' bgs	Date Reported:	11-11-93
Laboratory Number:	6476	Date Sampled:	11-10-93
Sample Matrix:	Soil	Date Received:	11-10-93
Preservative:	Cool	Date Extracted:	11-11-93
Condition:	Cool & Intact	Date Analyzed:	11-11-93
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	192	13.2
Toluene	2,180	19.8
Ethylbenzene	2,360	13.2
p,m-Xylene	29,700	19.8
o-Xylene	14,100	19.8

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	101 %
Bromofluorobenzene	102 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948

Analyst

Review

ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 418.1
TOTAL PETROLEUM HYDROCARBONS

Client:	Amoco	Project #:	92140
Sample ID:	#2 @ 9' bgs	Date Sampled:	11-10-93
Laboratory Number:	6477	Date Received:	11-10-93
Sample Matrix:	Soil	Date Analyzed:	11-12-93
Preservative:	Cool	Date Reported:	11-12-93
Condition:	Cool & Intact	Analysis Needed:	TPH

Parameter	Concentration (mg/kg)	Det. Limit (mg/kg)
Total Petroleum Hydrocarbons	358	10.0

ND = Parameter not detected at the stated detection limit.
N/A = Not applicable

Method: Method 418.1, Petroleum Hydrocarbons, Total Recoverable, Chemical Analysis of Water and Waste, USEPA Storet No.4551, 1978

Comments: Bruington GC #1, Blow Pit, C4948

Tony Tristano
Analyst

Review

ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	#2 @ 9' bgs	Date Reported:	11-11-93
Laboratory Number:	6477	Date Sampled:	11-10-93
Sample Matrix:	Soil	Date Received:	11-10-93
Preservative:	Cool	Date Extracted:	11-11-93
Condition:	Cool & Intact	Date Analyzed:	11-11-93
		Analysis Requested:	BTEX

Parameter	Concentration (ug/Kg)	Det. Limit (ug/Kg)
Benzene	61	13.1
Toluene	940	19.6
Ethylbenzene	890	13.1
p,m-Xylene	5,000	19.6
o-Xylene	1,530	19.6

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	98 %
Bromofluorobenzene	101 %

Method: Method 5030, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986.

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948

Analyst

Review

ENVIROTECH LABS

5796 US HIGHWAY 64-3014 • FARMINGTON, NEW MEXICO 87401
PHONE: (505) 632-0615 • FAX: (505) 632-1865

EPA METHOD 8020
AROMATIC VOLATILE ORGANICS

Client:	Amoco	Project #:	92140
Sample ID:	Pit Water	Date Reported:	11-11-93
Laboratory Number:	6478	Date Sampled:	11-10-93
Sample Matrix:	Water	Date Received:	11-10-93
Preservative:	HgCl and Cool	Date Analyzed:	11-11-93
Condition:	Cool and Intact	Analysis Requested:	BTEX

Parameter	Concentration (ug/L)	Det. Limit (ug/L)
Benzene	5,500	1.0
Toluene	4,380	1.5
Ethylbenzene	438	1.0
p,m-Xylene	2,660	1.5
o-Xylene	790	1.5

SURROGATE RECOVERIES:

Parameter	Percent Recovery
Trifluorotoluene	100 %
Bromofluorobenzene	102 %

Method: Method 5030A, Purge-and-Trap, Test Methods for Evaluating Solid Waste, SW-846, USEPA, July 1992

Method 8020, Aromatic Volatile Organics, Test Methods for Evaluating Solid Waste, SW-846, USEPA, Sept. 1986

ND - Parameter not detected at the stated detection limit.

Comments: Bruington GC #1 Blow Pit C4948

Analyst

Review

3179

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location		ANALYSIS/PARAMETERS
Amoco 92140	Blow Pit Bruington GC #1		C4948
Sampler: (Signature) Robert M Young	Chain of Custody Tape No.		

Sample No./ Identification	Sample Date	Sample Time	Lab Number	Sample Matrix	No. of Containers	418.1	BTEX					Remarks
#1 @ 10' bgs	11/10/93	1415	6476	SOIL	1	✓	✓					
#2 @ 9' bgs	11/10/93	1415	6477	SOIL	1	✓	✓					
Pit Water	11/10/93	1400	6478	WATER	2		✓					

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Robert M Young	11/10/93	1530	Tony Tritono	11/10/93	1530
Relinquished by: (Signature)			Received by: (Signature)		
Relinquished by: (Signature)			Received by: (Signature)		

ENVIROTECH INC.
5796 U.S. Highway 64-3014
Farmington, New Mexico 87401
(505) 632-0615

san juan repro Form 578-81